Amendment Dated November 13, 2007
Serial No. 10/714,080

REMARKS

Reconsideration of the rejections set forth in the Office Action dated July 10, 2007, is respectfully requested.   By this Amendment, claims 7 and 16 have been canceled without prejudice or disclaimer and claims 1, 5-6, 8-9, 11, 17, and 18 have been amended. Currently, claims 1-6, 8-15, and 17-18 are pending in this application.

Objection to drawings

The Examiner objected to figure 1 for not showing reference number 10. Applicants submit herewith proposed changes to Fig. 1 to add the requested reference number. This drawing change does not add new matter. The Examiner is respectfully requested to approve the drawing change when acting on this amendment.

Objection to specification

The Examiner objected to the specification for not providing an explanation for several acronyms "TAP, PID, CIR[phb] and TC[phb]". TAP and PID identify the slot address and subaddress where a packet is to be routed within a network element. Since these terms are not used elsewhere in the application applicants have deleted the terms TAP and PID from paragraph 36. CIR stands for Committed Information Rate, as recited in Paragraph 59. Applicants have amended paragraph 12 of the specification to include the phrase "Committed Information Rate (CIR)". TC[phb] stands for the Token Count of each token bucket that is used to control the PHB flows. Applicants have amended paragraph 61 to clarify this. An appendix is attached that shows the changes that were made to these paragraphs in which material that was added is underlined and material that was removed is shown with strikeout lining.

Rejection under 35 USC 112, second paragraph

The Examiner rejected claims 5, 6, and 11-18 under 35 USC 112, second paragraph, as indefinite. Applicants have amended the claims to overcome this rejection and respectfully request that it be withdrawn. Specifically, applicants have changed the term "designation" in claims 5 and 6 to refer to green, yellow, and red, which are common ways of designating a class of packets on the network as being in or out of profile.

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To understand how claim 11 is crafted, it may be worth-while explaining the underlying technology. As set forth in the Specification at Par. 7, microflows with the same Class of Service and which are associated with a particular Service Level Agreement (SLA) are used to form Per Hop Behavior (PHB) groups. Multiple PHB groups may be transmitted by a network element onto a communication link.

However, since traffic in a particular PHB is required to be treated different than traffic in a different PHB (since each PHB is associated with a different SLA), the network element is required to meter each PHB individually. (Specification at par. 8). One common way to meter traffic is to use token buckets. (Specification at par. 10). Since multiple aspects of a PHB may need to be metered individually, for example green traffic, yellow traffic, and red traffic may each need to be individually metered, it is necessary to use multiple token buckets for each PHB. As noted by applicants in the specification at paragraph 10, where a two rate three color marker is to be implemented, 16 token buckets may be necessary to meter each PHB.

Claim 11 has been amended to recite a packet meter that includes a separate in-profile token bucket for each PHB to meter in-profile packets on a per-PHB basis, and a common token bucket to meter out-of-profile packets for multiple PHBs collectively. In view of this explanation, and in view of the amendments to the claims, applicants respectfully submit that the claims are not indefinite under 35 USC 112.

Claim 16 has been canceled and several of the features of claim 16 have been moved into claim 11. Accordingly, the rejection of claim 16 is believed moot.

Rejection under 35 USC 103

Claims 1-7 and 9-18 were rejected under 35 USC 103 as unpatentable over Gandhi. et al. (U.S. Patent Publication No. 2005/0120102) in view of Blake, et al. "An Architecture for Differentiated Services." This rejection is respectfully traversed in view of the amendments to the claims and the following arguments.

Gandhi teaches a system in which two token buckets are used to meter traffic (See Fig. 4) As shown in Fig. 4, Gandhi teaches a system in which a Peak Information Rate (PIR) token bucket 405 is first checked to see if there are enough tokens in the PIR bucket to pass the packet. (Gandhi at Par. 55). If there are not sufficient tokens in the PIR bucket the packet is marked red. If there are sufficient tokens in the PIR token bucket, Gandhi then checks a CIR token bucket.

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(Gandhi at Par. 56). If there are sufficient tokens in the CIR token bucket the packet will be marked green, otherwise it will be marked yellow. If the packet is marked yellow tokens will be taken from the PIR token bucket to transmit the packet. If the packet is marked green, then tokens will be taken from each of the PIR and CIR token buckets to transmit the packet (Gandhi at Par. 56).

Thus, Gandhi teaches that the PIR and CIR buckets should be used together to determine first if the traffic is red, and then to determine if it is yellow or green. In the system taught by Gandhi a determination that the packet is green will cause both token buckets to be decremented by a particular number of tokens.

The Examiner indicated that Gandhi fails to teach or suggest metering traffic on a per-PHB basis (See Office Action at page 4, line 18), but indicated that this feature was taught by Blake. Assuming that this is correct, and assuming that Blake and Gandhi are able to be combined as suggested by the Examiner, applicants respectfully submit that the combination would not teach the claims as amended.

Specifically, applicants have amended the claim 1 to recite that the method includes metering first traffic for a first Per Hop Basis group (PHB) to ascertain first in-profile traffic for the first PHB using a first PHB in-profile token bucket, metering second traffic for a second PHB to ascertain second in-profile traffic for the second PHB using a second PHB in-profile token bucket different than the first PHB in-profile token bucket, and commonly metering traffic that has not been ascertained to be in-profile traffic using a third common token bucket.

Combining Blake with Gandhi would result in a system in which two token buckets were used to meter each PHB. Specifically, if Gandhi's token buckets were to be used to meter traffic on a per-PHB basis, it would be expected that Gandhi would use a first per-PHB token bucket 405 to meter the PIR for that PHB, and then use a second token bucket 420 to meter the CIR for that PHB. Gandhi would do this for each PHB, thus using a pair of token buckets to meter each PHB. Additionally, since the operation of the CIR and PIR token buckets in Gandhi are interrelated, such that marking a packet as green requires tokens to be taken out of both the PIR and CIR token buckets 405, 420 (See Gandhi at Par. 56), the combination of Gandhi and Blake would require a separate pair of PIR and CIR token buckets for each PHB.

Thus, the combination of Gandhi and Blake would not have taught or suggested metering packets on a per-PHB basis to determine in-profile traffic for that PHB, and then commonly

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metering traffic that was not determined to be in-profile traffic. First, Gandhi meters traffic in the opposite manner (first metering to determine if traffic is out of profile, and then metering to determine if the traffic is in-profile). Second, Gandhi requires the two token buckets to operate together when a packet is determined to be in-profile, such that determining that a packet fits within the CIR token bucket will cause tokens to be taken out of the PIR bucket as well as the CIR token bucket. In this instance, applicants respectfully submit that it would not have been obvious to modify the way in which Gandhi operates to collectively meter out of profile traffic when the traffic does not fit within the CIR bucket, even if the traffic were to be metered on a per-PHB basis.

Claim 1 has been amended to recite metering first and second PHBs using first in-profile token buckets, and commonly metering traffic that is not in-profile using a common token bucket. Gandhi does not teach or suggest anything of this nature. Accordingly, applicants respectfully submit that claim 1 is patentable over the combination of Gandhi and Blake.

Claim 11 has been amended to recite a meter comprising a separate in-profile token bucket for each PHB to meter in-profile packets on a per-PHB basis, and a common token bucket to meter out-of-profile packets for multiple PHBs collectively. In view of these amendments and the explanation provided above, applicants respectfully submit that amended claim 11 is patentable over the combination of Gandhi and Blake.

Rejection under 35 USC 103

Claim 8 was rejected under 35 USC 103 as unpatentable over Gandhi in view of Balachandran (U.S. Patent Application No. 2004/0208183). Claim 8 depends on claim 1 and is therefore patentable for at least the reasons noted above. Accordingly, applicants respectfully request the Examiner to withdraw the rejection of claim 8 under 35 USC 103.
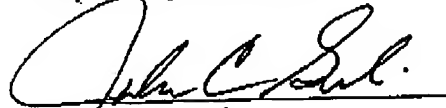

Conclusion

In view of foregoing claim amendments and remarks, it is respectfully submitted that the application is now in condition for allowance and an action to this effect is respectfully requested. If there are any questions or concerns regarding the amendments or these remarks, the Examiner is requested to telephone the undersigned at the telephone number listed below.

If any fees are due in connection with this filing, the Commissioner is hereby authorized

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to charge payment of the fees associated with this communication or credit any overpayment to Deposit Account No. 502246 (Ref: NN-16234).

Respectfully Submitted

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Inventor: Timothy Mancour, et al.
Title: METHOD AND APPARATUS FOR ALLOCATING
BANDWIDTH AT A NETWORK ELEMENT
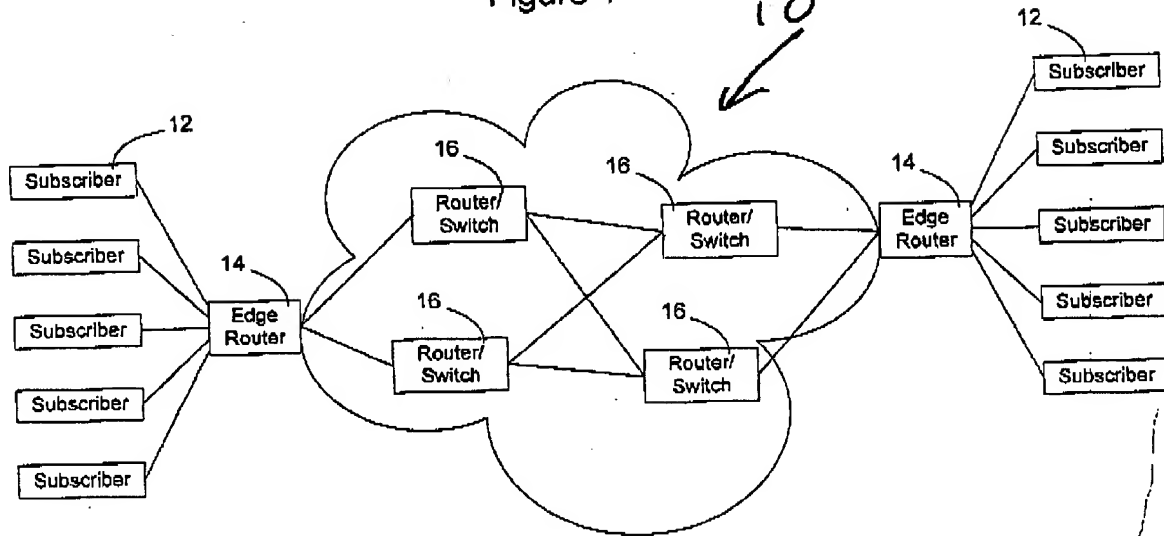Attorney Docket No: 16234BAUS02U
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Figure 1

Figure 2